



Third West Weekly Report Shepherd, Michael

to:

Joyce Ackerman, 'Craig Barnitz (cbarnitz@utah.gov)' 12/15/2011 09:09 AM

Hide Details

From: "Shepherd, Michael" < Michael. Shepherd@PacifiCorp.com>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Barnitz (cbarnitz@utah.gov)'" <cbarnitz@utah.gov>

8 Attachments











Weekly Reports 12-5 to 12-10.pdf Third West Weekly Log 2011-49.pdf 225959-1.pdf 225466-1.pdf 225594-1.pdf







225627-1.pdf 225718-1.pdf 225865-1.pdf

Joyce & Craig,

Attached are the reports for the week of December 5, 2011.

All air monitoring results came back negative, except there was a positive hit on Wednesday and Thursday last week, both were chrysotile.

Please let me know if you have any questions.

Thanks,

Mike Shepherd
Project Manager
Rocky Mountain Power - Major Projects
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3RD WEST SUBSTATION REMEDIATION PROJECT - HEALTH SAFETY MANAGER (HSM)

DATE	DAIL I CHECKLIST
DATE:	12/5/11 -
<u>General</u>	•
<u> </u>	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA	Complete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
NA	Exclusion zone operations are practiced as instructed.
	NA Decontamination unit is working properly.
	NA Workers are using decontamination unit as instructed.
	NA Workers use personal protective equipment properly.
☑	Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
☑	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
\square	Review sign-in/sign-out log throughout and at the end of the workday.
☑	Secure the site at the end of the workday; PacifiCorp Employee
Sampling	Į.
NA	Soil Confirmation sampling for any newly excavated areas
NA	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel





NA	Electronically file photo files into the on-site database
I	Complete Field Documentation
\square	Field Sample Data Sheets (FSDS)
\square	Logbook
NA	On-site computer database
abla	Label each sample media with a unique number
abla	Seal sample(s) in zip lock plastic bags
Ø	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
Ø	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
Ø	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
NA	Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project:	3rd West Sub Station	Date:	12/5/11
Location:	3rd West, 1st South, SLC	Job Number:	
Survey Conducted By:	Jon Craig	Title:	IH Technician

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х	×		
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.	х			
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	х			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.	х	E .		
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.	x			
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.	x			
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.		,	х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х		*	
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.	х			
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	х			
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½" fire resistance barrier.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.		la	х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			х	,
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.		3	х	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

*





HEALTH SAFETY MANAGER (HSM)

	DAILY CHECKLIST
DATE:	12/6/11
	•
<u>General</u>	
Ø	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
'NA	Complete all CSHASP Forms (for applicable activities planned for that day)
, NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
· NA	Exclusion zone operations are practiced as instructed.
	NA Decontamination unit is working properly.
	NA Workers are using decontamination unit as instructed.
	NA Workers use personal protective equipment properly.
Ø	Set air samples at cardinal compass points around exclusion zone. Check
_	throughout the day to ensure proper operation.
☑	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
☑	Review sign-in/sign-out log throughout and at the end of the workday.
☑	Secure the site at the end of the workday; PacifiCorp Employee
Sampling	
NA	Soil Confirmation sampling for any newly excavated areas
NA	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





NA	Electronically file photo files into the on-site database
☑	Complete Field Documentation
$\overline{\mathbf{A}}$	Field Sample Data Sheets (FSDS)
$\overline{\mathbf{A}}$	Logbook
NA	On-site computer database
$\overline{\checkmark}$	Label each sample media with a unique number
	Seal sample(s) in zip lock plastic bags
☑	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
7	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
	Review and disseminate sample results as received from the laboratories to Project
_	Manager and other appropriate managers and employees
NA	Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project:	3rd West Sub Station	Date:	12/6/11
Location:	3rd West, 1st South, SLC	Job Number:	
Survey Conducted By:	Jon Craig	Title:	IH Technician

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 '(b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.	x			
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	х			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.	х		(4)	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.		×	х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.	х			
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.	х			1
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			х	g
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (Ь)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.	х			
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	Y
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	x			
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			1
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½" fire resistance barrier.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	х			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	*
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х		-	
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.		ú	x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

Comments:

CVE forming walls and rebar for the transformer pedestal.

Newman clearing Northeast section of the site of clean fill pile and gravel in preparation for excavation of the switch gear structure.

Exclusion zone is not active today.





HEALTH SAFETY MANAGER (HSM)

	Direct Checkers
DATE:	12/7/11
<u>General</u>	
	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior
	to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA NA	Complete Employee Meeting Record Form B (where applicable
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with
1421	contaminated material.
NA	Confirm return of waste material manifest documents for each load with site
11/1	manager.
NA	Complete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
NA	Exclusion zone operations are practiced as instructed.
	NA Decontamination unit is working properly.
	NA Workers are using decontamination unit as instructed.
	NA Workers use personal protective equipment properly.
	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
☑ '	Observe control measures for dust and fugitive materials i.e. watering excavation sites and
	track out prevention.
\square	Review sign-in/sign-out log throughout and at the end of the workday.
☑	Secure the site at the end of the workday; PacifiCorp Employee
Samplin	<u>g</u>
NA	Soil Confirmation sampling for any newly excavated areas
NA	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel





Electronically file photo files into the on-site database NA ablaComplete Field Documentation Field Sample Data Sheets (FSDS) \square Logbook NA On-site computer database Label each sample media with a unique number \square \square Seal sample(s) in zip lock plastic bags Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees NA Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project:	3rd West Sub Station	Date:	12/7/11
Location:	3rd West, 1st South, SLC	Job Number:	
Survey Conducted By:	Jon Craig	Title:	IH Technician

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

Standard	Title	In Compliance	Out of Compliance	D N/A	Corrective Action Taken and
Stanaara					Dute
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.	х			
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	х			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.	x			
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.	х	2		•
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.	х			
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.	x			
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	x			
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	x		2	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½" fire resistance barrier.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date Tester Tuken uma
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			х	e
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	X			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.	х			

Comments:

CVE pouring 130 yards of concrete for the transformer pedestal and several footings and stems. Newman excavating for the switch gear structure and 2 footings/stems at Northeast section of the site. No active Exclusion Zone today.





3RD WEST SUBSTATION REMEDIATION PROJECT HEALTH SAFETY MANAGER (HSM)

DATE.	DAILT CHECKLIST
DATE:	12/8/11
<u>General</u>	
<u> </u>	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior
- \	to commencement of any site work. Instruction, review hazards, health & safety issues
	and any modifications to the CSHASP
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	contaminated material.
NA	Confirm return of waste material manifest documents for each load with site
	manager.
NA	Complete all CSHASP Forms (for applicable activities planned for that day)
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NA	Site-Specific Training Record Form C
NA	Hot Work Pennit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Pennit From F
NA	Exclusion zone operations are practiced as instructed.
	NA Decontamination unit is working properly.
	NA Workers are using decontamination unit as instructed.
	NA Workers use personal protective equipment properly.
Ø	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
☑	Observe control measures for dust and fugitive materials i.e. watering excavation sites and
_	track out prevention.
	Review sign-in/sign-out log throughout and at the end of the workday.
$\overline{\square}$	Secure the site at the end of the workday; PacifiCorp Employee
Sampling	
NA	Soil Confirmation sampling for any newly excavated areas
NA	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





NA	Electronically file photo files into the on-site database
\square	Complete Field Documentation
	Field Sample Data Sheets (FSDS)
\square	Logbook
NA	On-site computer database
\blacksquare	Label each sample media with a unique number
$\overline{\mathbf{A}}$	Seal sample(s) in zip lock plastic bags
Ø	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
\square	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
☑	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
NA	Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project:	3rd West Sub Station	Date:	12/8/11
Location:	3rd West, 1st South, SLC	Job Number:	
Survey Conducted By:	Jon Craig	Title:	IH Technician

Standard	Title .	In Compliance	Out of Compliance	O N/A	Corrective Action Taken and Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			х	v 1
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.	х		9	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.	x			
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.	x			
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.	9		х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.	х			
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.	x			
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	х			
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			£
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	x			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a 1/2" fire resistance barrier.	x		al .	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.		ar.	x	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			<i>(</i>),
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.	х			

Comments:

CVE removed forms for the all poured structures from yesterday except transformer pedestal. Continued tying rod and building forms for several footings and stems in the West center of the work area. Newman excavating for the switch gear structure and 2 footings/stems at Northeast section of the site. Clean fill is being hauled and stored off-site.

No active Exclusion Zone today.





HEALTH SAFETY MANAGER (HSM)

DATE:	12/9/11
General	West-one Health and Cofete Income Con
☑ N A	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior
NA	to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with
	contaminated material.
NA	Confirm return of waste material manifest documents for each load with site
	manager.
NA	Complete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
NA	Exclusion zone operations are practiced as instructed.
	NA Decontamination unit is working properly.
	NA Workers are using decontamination unit as instructed.
	NA Workers use personal protective equipment properly.
\square	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
\square	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
	Review sign-in/sign-out log throughout and at the end of the workday.
\square	Secure the site at the end of the workday; PacifiCorp Employee
Sampling	
NA	Soil Confirmation sampling for any newly excavated areas
NA	Stationary Air Monitoring during contaminated soil removal around the perimeter of the
	exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





NA	Electronically file photo files into the on-site database
\square	Complete Field Documentation
$\overline{\mathbf{Q}}$	Field Sample Data Sheets (FSDS)
	Logbook
NA	On-site computer database
	Label each sample media with a unique number
	Seal sample(s) in zip lock plastic bags
Ø	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
\square	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
团	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
NA	Electronically file sample reports into on-site database





HEALTH SAFETY MANAGER (HSM)

	DAILT CHECKLIST
DATE:	12/9/11
<u>General</u>	
	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
147 k	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior
111	to commencement of any site work. Instruction, review hazards, health & safety issues
	and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA	Complete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
NA	Exclusion zone operations are practiced as instructed.
	NA Decontamination unit is working properly.
	NA Workers are using decontamination unit as instructed.
	NA Workers use personal protective equipment properly.
☑	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
☑	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
	Review sign-in/sign-out log throughout and at the end of the workday.
☑	Secure the site at the end of the workday; PacifiCorp Employee
Sampling	
NA	Soil Confirmation sampling for any newly excavated areas
NA	Stationary Air Monitoring during contaminated soil removal around the perimeter of the
- ·- -	exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil
* · * *	removal
NA	Digitally photograph each sample location and at any place field sampling personnel
	determined necessary





NA	Electronically file photo files into the on-site database
$\overline{\mathbf{Z}}$	Complete Field Documentation
$ abla^{\bullet}$	Field Sample Data Sheets (FSDS)
$\overline{\mathbf{A}}$	Logbook
NA	On-site computer database
	Label each sample media with a unique number
$\overline{\mathbf{Q}}$	Seal sample(s) in zip lock plastic bags
☑	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
$\overline{\mathbf{Q}}$	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental
	Samples
	Review and disseminate sample results as received from the laboratories to Project
	Manager and other appropriate managers and employees
NA	Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project:	3rd West Sub Station	Date:	12/9/11
Location:	3rd West, 1st South, SLC	Job Number:	
Survey Conducted By:	Jon Craig	Title:	IH Technician

Standard	Title	☐ In Compliance	Out of Compliance	D N/A	Corrective Action Taken and
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х		9	
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			

Standard	Title	In Compliance	Out of Compliance	D N/A	Corrective Action Taken and Date
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.	x			
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.	х			
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.	x			
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

Standard	Title	In Compliance	Out of Compliance	O N/A	Corrective Action Taken and Date
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	,
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.	x			
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	х			
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			,
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½" fire resistance barrier.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			·
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	,
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			х	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	~
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	,
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.	х			

Comments:

CVE continued tying rod and building forms for several footings and stems in the West center of the work area. Pouring concrete for footings and stems.

Newman excavating for the switch gear structure and 2 footings/stems at Northeast section of the site.

Clean fill is being hauled and stored off-site.

No active Exclusion Zone today.



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station	Date: 12/10/11
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: Justin Kargis	Title:

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.		-	х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.			x	
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			

Standard	Title	In Compliance	Out of Compliance	D N/A	Corrective Action Taken and Date
Stantara	Excavation protective systems; examination by			х	
1926.652 (a) (1)	competent person when less than 5 feet in depth.				*
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			*
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.		**	х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.	2	1921 II	X	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	*
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.			х	*
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.			х	
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.		Đ	Х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.			х	
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.		z	х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			х	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	. 4
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer of the tool is double insulated.			x	
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Comments:

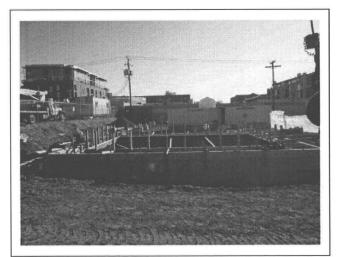
CVE fabricators came in to strip forms from stem footings around the transformer pad. Worked from around 7 am to 3 pm. Exclusion zone not active. Area samples set at around 8 am and collected around 4 pm.



РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R&R Environmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:
DCR

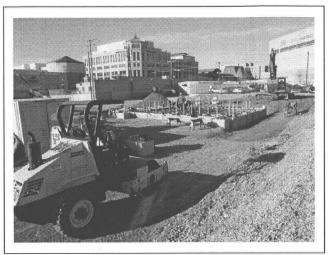
CREATED BY:
JRWC

DATE:
12/5/2011

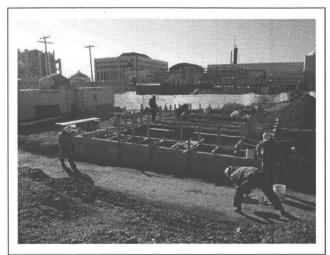
FILE:

SITE PHOTOGRAPHS

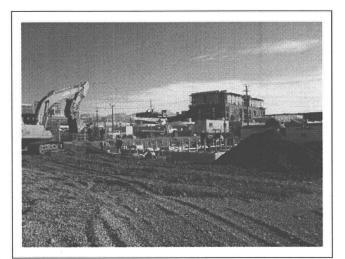




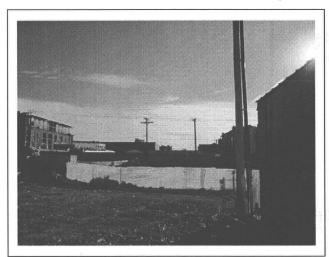
РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R&R Environmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	11
CREATED BY: JRWC	DATE: 12/6/2011	FILE:	

SITE PHOTOGRAPHS





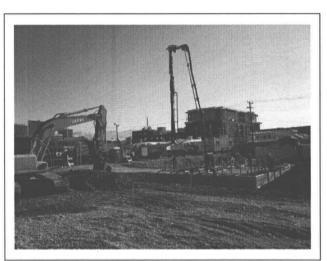
РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

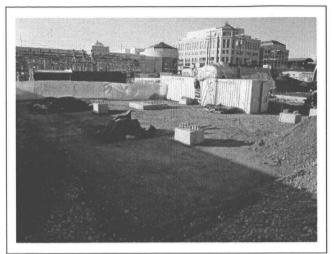
R&R Environmental, Inc. 47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	_
CREATED BY: JRWC	DATE: 12/7/2011	FILE:	_

SITE PHOTOGRAPHS





РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R&R Environmental, Inc. 47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
CREATED BY: JRWC	DATE: 12/8/2011	FILE:	

SITE PHOTOGRAPHS





РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R&R Environmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
CREATED BY: JRWC	DATE: 12/8/2011	FILE:	

SITE PHOTOGRAPHS



PROJECT NAME:	Third V	West Sub - F	Rebuild	DATE: Monday, December 5, 201					
PO & Work Order NO. :	30000	78050 / 100	35803	MAIN CONTRA	CTOR : Cache Valle	y Electric			
Crew Start Time:	6:50		Crew Stop Time:	17:15	Tot Hrs mns:	10:25			
FCR Start Time:	6:45	<u> </u>	FCR Stop Time:	17:20	Tot Hrs mns:	10:35			
Use military time format 00:00									
WEATHER CONDITIONS:	* 12	₹₹ .	Sunny, 25 degr	ees in AM, 28 degi	rees in PM	3.11			
		- St.	* 3.5			-3-183			
DESCRIPTION: (work performance R&R set up four monitors. New									
building under a visqueen cover anticipated that we will relocate the switchgear area. Newman's or hauled to Clean Harbor. CVE strengthen the forms, added kic 3" clearance from TOC.	some of the EZ to superintendent co E fab crew made skers to reinforce	fence tomorro ame by to rev forms for har the forms to l	ow to take the control riew concrete that will nging the anchor bolt	I building out of the E Il need to be removed s for the transformer , and adjusted the sp	Z and to allow removal o I from the site, whether it pedestal, installed pencil	f spoils fron is recycled rod to			
			\$ MOD						
IF WORKING IN ENERGIZE					183 3				
Dispatcher login, name and time									
Dispatcher logout, name and tin	ne: Barry Nie	lson 1720	× ,	IMMEDIATE COR	DECTIVE ACTION TA	VEN.			
DISCREPANCIES: ** Last week we found two fdns in the	old cub that wore	under the Vard	rock and not included		RECTIVE ACTION TA removing the additional cond				
in the details of concrete to be remo		under the yard	lock and not included	CAT to bloaide co to	removing the additional cont	Jete.			
No resolution on the 20' ground rod	Issue.			CVE to provide per unit					
Identified an additional retaining war Plan.	II that is below grad	de and does no	t show on the Demo	Will excavate to determ	nine dimensions.				
Two conduit sleeves are called for in find where there is any conduit callet			oward east end). Can't	Asked Roger Fuerst for	r clarification.				
DELAYS OR LOST TIME E			1. 18. 18. 18. 18.						
EQUIPMENT (working, deli CVE fab crew: Portable toilet (2), for portable wash-down structure, trace	orklift, 1 dumpster,	office trailer, co obcat, power w	onex , exclusion zone c asher, water tnuck, com	onex (2), tool trailer, cre	w truck, boom tnuck (2). Ne nent breaker.	wman:			
				<u>_</u>	4 4 1 0 0	T i			
OSHA Recordable Safety I	ncidents:			Re	ported by:	Time:			
					•	-			



PROJECT NAME:	Third V	Vest Sub - Rebuild	DATE : Tuesday, December 6, 20				
PO & Work Order NO. :	300007	78050 / 10035803	MAIN CONTRACTOR	: Cache Valle	y Electric		
Crew Start Time:	6:50	Crew Stop Time:	16:45	Tot Hrs mns:	9:55		
FCR Start Time:	6:40	FCR Stop Time:	17:00	Tot Hrs mns:	1 0 :20		
Use military time format 00:0		-		_,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	10.20		
		· · · · · · · · · · · · · · · · · · ·	•				
WEATHER CONDITIONS:		Sunny, 25 degr	ees in AM, 28 dégrees in	PM	•		
DESCRIPTION: (work per	rf <mark>or</mark> med, genera	l comments, iristructions to	contractor, # of crew me	embers onsite.) , 555		
Nevman placed backfill along	the east side of the bars in the spread	l around the yard for removal of se oil containment and provided a footings and placing anchor bolts tely 130 cy on W ednesday	ramp at the east gate for acc	ess into the south CVE did a good	yard. CVE cleanup of		
IF WORKING IN ENERGIZ Dispatcher login, name and tin	ne: Eari McG	lore 0 645					
Dispatcher logout, name and t DISCREPANCIES:	ime. IBany Nie	Ison 1852	IMMEDIATE CORRECTIV	/E ACTION TA	VEN.		
	e old sub that were u	under the yard rock and not included	CVE to provide CO for removing				
in the details of concrete to be ren							
No resolution on the 20' ground ro	od issue.		CVE to provide per unit price to	drill concrete.			
Identified an additional retaining w Plan.	vall that is below grad	le and does not show on the Demo	Will excavate to determine dime	nsions.			
Two conduit sleeves are called for find where there is any conduit ca	lled out on the condu		Asked Roger Fuerst for clarificat	tion.			
EQUIPMENT (working, de CVE fab crew: Portable toilet (2),	elivered, idle): forklift, 1 dumpster, (office trailer, conex , exclusion zone o at, power wash e r, water truck, compa		boom truck (2). Ne	wman:		
OCHA Becomdoble Cofety	Incidents		Dan anti- J	l have	Time		
OSHA Recordable Safety	incidents:		Reported	oy:	Time:		
	•						
<u> </u>							



PROJECT NAME:	Third W	est Sub - Rebuild	DATE : Wednes	day, December	7, 2011
PO & Work Order NO. :	3000078050 / 10035803		MAIN CONTRACTOR	: Cache Valle	y Electric
Crew Start Time:	6:50	Crew Stop Time:	18:05	Tot Hrs mns:	11:15
FCR Start Time:	6:45	FCR Stop Time:	18:10	Tot Hrs mns:	11:25
Use military time format 00:00		_		-	
oss minary amoromical series			•		
WEATHER CONDITIONS:		Sunny, 17 degr	ees in AM, 35 degrees in	PM	•
		comments, instructions to ating for the switchgear and "N"			
crew began their concrete pour pedestals for the south spread t	at 9:00 and complifootings and six paithin acceptable painometer on the train	t any contaminated soils. They leted the pour at approximately 1 lds for the C, D, and N spread for ameters for both air and slump, insformer foundation.	1:30. The pour took 129 cys a otings in the north end of the	and included the east bay. Wildin ets on the new or	five g conducted oncrete and
IF WORKING IN ENERGIZE					
Dispatcher login, name and time		ore 0640			
Dispatcher logout, name and tin	ne: Bany Niels	son 182 0			
DISCREPANCIES:	<u> </u>		IMMEDIATE CORRECTIV		
Last week we found two fdns in the		nder the yard rock and not included	CVE to provide CO for removing	the additional cond	crete.
in the details of concrete to be remo	oved from the site		CVE to provide per unit price to	drill concrete	
neo resoluțion on the 20 ground rou	13300.		OVE to provide per unit price to	arm correcte	
Identified an additional retaining wa Plan.	III that is below grade	e and does not show on the Demo	Will excavate to determine dime	nsions.	7
Two conduit sleeves are called for in find where there is any conduit called		n north wall (toward east end). Can't	Decision made by Roger Fuerst foundations.	to install and cap,	both
DELAYS OR LOST TIME E	NCOUNTERED:	· · · · · · · · · · · · · · · · · · ·			
		·			
EQUIPMENT (working, del	ivered, idle):				·
CVE fab crew: Portable toilet (2), for	orklift, 1 dumpster, of	ffice trailer, conex , exclusion zone c , power washer, water truck, compa		oom truck (2). Ne	wman:
OSHA Recordable Safety I	Incidente		Reported	by:	 Time:
OSHA Recordable Safety I	moruents.		Reported	υy. T	THIE.
					
L					



Russ Johnson

Field Construction Representative

PROJECT NAME:	Third West Sub - Rebuild		DATE:	Thursd	lay, December 8, 2011	
PO & Work Order NO. :	3000078050 / 10	035803	MAIN CONT	RACTOR :	Cache Valley Electric	
Crew Start Time: 6	s:55	Crew Stop Time:	17:05	5	Tot Hrs mns:	10:10
FCR Start Time: 6	5:40·	FCR Stop Time:	17:10)	Tot Hrs mns:	10:30
Use military time format 00:00		. 50, 515 , 111151	.,,,,		.,	
WEATHER CONDITIONS:		Sunny - 19 deg	rees in AM , 35 c	degrees in l	РМ	
DESCRIPTION: (work performe R&R set up four monitors. Brent Wgg						
and I met with Brent and Mike to discu- have the option of breaking up the foo- instruction. Newman backfilled around switchgear and the NE "N" footings. Of for the north C, D, and N (SW) pedest CVE fab crew = 6, Newman = 4, R&R	ting, wall, and floor of d the spread footing po CVE stripped the forms als. CVE will be pour	the switchgear into the ads we poured yesten s from the C, D, and F	ree pieces. Brent day (C, D, and N) pedestals and se	sent out an and continue t up the reba	e-mail detailing to ed excavating for ar, forms, and an	this r the chor bolts
IF WORKING IN ENERGIZED SU	BSTATION:					
Dispatcher login, name and time:	Al Swinski 0645					
Dispatcher logout, name and time:	Manny Luhaun 1713					
DISCREPANCIES: Last week we found two fdns in the old sub	that ware under the Var	d rock and not included	CVE to provide CO			
in the details of concrete to be removed fro		d fock and not produced	CVE to provide CC	/ IOI Tellioving	the additional cond	Jele.
No resolution on the 20' ground rod issue.			CVE to provide per	unit price to	drill concrete.	
Identified an additional retaining wall that is Plan.	s below grade and does	not show on the Demo	Will excavate to de	termine dimer	nsions.	
			:			
DELAYS OR LOST TIME ENCOL	JNTERED:					
EQUIPMENT (working, delivered CVE fab crew: Portable toilet (2), forklift, 1 portable wash-down structure, trachoe (2)	dumpster, office trailer,			, crew truck, b	oom truck (2). Ne	wman:
OSHA Recordable Safety Incide	nts:			Reported	by:	Time:



PROJECT NAME: Third West Sub - Rebuild		DATE:	, December 9,	cember 9, 2011		
PO & Work Order NO. :	3000078050 / 10035803		MAIN CONT	MAIN CONTRACTOR:		y Electric
Crew Start Time:	7:00	Crew Stop Time:	17:15	i	Tot Hrs mns:	10:15
FCR Start Time:	6:40	FCR Stop Time:	17:20		Tot Hrs mns:	10:40
Use military time format 00:0					-	10.10
Go illinary unio rollilat co.						
WEATHER CONDITIONS:	<u> </u>	Sunny - 17 deg	rees in AM, 38 d	egrees in P	M	
		al comments, instructions to b excavate for the switchgear and				
rebar and anchor bolts and por on the following items: 1) 46 I	ured the pedestals kV termination pie ovided for the 138	:00 to witness a proof rolling of the s for the C, D, and N foundations. Its are to be taken down 5', 2) FT kV ductbank on both ends of the pors for the switchgear.	Placed blankets of B is to be installed	on new conc around the nd 4) RMP r	rete. Received 12 kV conduits equires 7 days	clarification under the between
IF WORKING IN ENERGIZ	ED SUBSTATI	ON•				
						
Dispatcher login, name and tin						
Dispatcher logout, name and to DISCREPANCIES:	ine priantly Li	uhaun 1720	IMMEDIATE CO	DDECTIV	E ACTION TA	VEN.
**-	o old sub that were	under the yard rock and not included	CVE to provide CO			
in the details of concrete to the rem		urider the yard rock and not madded	OVE to provide OO	ioi fornoving i	ric additorial cort	Jete.
No resolution on the 20' ground ro			CVE to provide per	unit price to d	rill concrete.	
Identified an additional retaining w	all that is below grad	de and does not show on the Demo	Will excavate to det	ermine dimen	sions.	.•
Plan						
DELAYS OR LOST TIME 	ENCOUNTERE	D:				
·						
EQUIPMENT (working, de			·	-		
		office trailer, conex, exclusion zone c obcat, power washer, water truck, com		crew truck, bo	oom truck (2). Ne	wman:
OSHA Recordable Safety	Incidents		<u> </u>	Reported	bv:	I Time:
DUTIN ROOM GOING CONTEST	moracitto.		<u> </u>		-,.	
	· · · · · · · · · · · · · · · · · · ·					



PROJECT NAME:	Third West Sub - Rebuild		DATE : Saturd	ay, December	10, 2011	
PO & Work Order NO. :	3000078050 / 10035803		MAIN CONTRACTOR	: Cache Valle	ey Electric	
Crew Start Time:	6:50	Crew Stop Time:	13:15	Tot Hrs mns:	6:25	
FCR Start Time:	6:45	FCR Stop Time:	13:30	Tot Hrs mns:	6:45	
Use military time format 00:00				_		
•			•			
WEATHER CONDITIONS:		Sunny - 22 deg	rees in AM, 40 degrees in	PM		
DESCRIPTION: (work performe	d. general comme	ents instructions to	contractor # of crew ma	embers onsite		
R&R set up four monitors. CVE fabr						
foundations and recovered them with cleaned up the yard and staged mate 6, R&R = 1, Wilding = 1.					indations fab crew =	
IF WORKING IN ENERGIZED SU	1	er ve				
Dispatcher login, name and time:	Val Christensen 06					
Dispatcher logout, name and time: DISCREPANCIES:	Val Christensen 13	30	IMMEDIATE CORRECTI	VE ACTION T	AKEN.	
Last week we found two films in the old su	b that were under the va	ard rock and not included	CVE to provide CO for removing			
in the details of concrete to be removed fro						
No resolution on the 20' ground rod issue.	•		CVE to provide per unit price to	drill concrete.		
Identified an additional retaining wall that i Plan.	s below grade and does	s not show on the Demo	Will excavate to determine dime	ensions.		
	 					
DELAYS OR LOST TIME ENCO	UNTERED:					
EQUIPMENT (working, delivered, idle): CVE fab crew: Portable toilet (2), foridift, 1 dumpster, office trailer, conex, exclusion zone conex (2), tool trailer, crew truck, boom truck (2). Newman: portable wash-down structure, trachoe (2), mini-ex, bobcat, power washer, water truck, compactor, backhoe.						
OSHA Recordable Safety Incide	ents:		Reported	l by:	Time:	
			1	-		





December 14, 2011

Laboratory Code:

RES NA

Subcontract Number: Laboratory Report:

RES **225**9**5**9-1

Project # / P.O. #
Project Description:

None Given 3rd West Sub - RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 225959-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely.

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 225959-1

Client:

R & R Environmental

Client Project Description:

Client Project Number / P.O.: None Given

3rd West Sub - RMP

Date Samples Received:

December 13, 2011

Analysis Type:

TEM, AHERA

Tu maround:

24 Hour

Date Samples Analyzed:

December 14, 2011

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter
ID Number	ID Ni	umber	Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-121011-W	EM	836579	0.0900	899	ND	0.0048	BAS	BAS
3W-121011-S	EM	836580	0.0900	898	ND	0.0048	BAS	BAS
3W-121011-N	EM	836581	0.0900	920	ND	0.0046	BAS	BAS
3W-121011-E	EM	836582	0.0900	929	ND	0.0046	BAS	BAS

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

Page 2 of 2

Due Date:_	12-14-1
Due Time:	900-

Results:

Contact

Contact

Reservoirs Environmental, Inc.

Page of

5801 Logsa St. Oerreer, CO 96216 • Ph; 303 964-1896 • Fax 303-477-4275 • Toll Free :866 RESI-ENV Pager: 303-509-2038 INVOICE TO: (IF DIFFERENT) CONTACT INFORMATION: Contact Vave Roskeller Conpany Contact: Environ menta Address: none Phona: 9000 S Fax . 84070 CaT/oacar 801 541-1035 roject Number and/or P.O. #; dave @ menino com Project Description/Location: 312 West Souls -KMP REQUESTED ANALYSIS **VALID MATRIX CODES** ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm LAB/NOTES: PLM / PCM / TEM RUSH (Same Day) X PRIORITY (Next Day) ___STANDARD Air = A Bulk = B (Rush PCM = 2hr, TEM = 6hr.) Dust = D Paint = P CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm Soil = S Wipe = W mz(+4 RUSH 24 hr. 3-5 Day Swab = SW Metal(s) / Dust F = Food Quant "Prior notification is Drinking Water = DW | Waste Water = WW RCRA 8 / Metals & Welding Paint Count required for RUSH . RUSH ___ 5 day ___10 day Fume Scan / TCLP ÷ 8 O = Other turnarounds.** "ASTM E1792 approved wipe media only" 24 hr. ___ 3 day 5 Day Organics 8. B MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm - AHERA, Level II, 7402, quant, Micro-vac, ISO-Indi METALS - Analyte(s) RCRA 8, TCLP, Welding Fume, E.coll O157:H7, Coliforms, S.aureus 24 hr. ___2 Day ___3-5 Day Salmonella, Listeria, E.coli, APC, Y & M 48 Hr. Mold RUSH 24 Hr _3 Day 5 Day "Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional feet apply for afterhours, weekends and holidays.** Matrix Code Special Instructions: Sample V((L) / Area EM Number (Laborator) Date Time Use Only) Collected Collected Client sample ID number (Sample ID's must be unique) MICROBIOLOGY mm/dd/yy hh/mm e/c **836579** 1 3W-12101 W විග 3111-121011S 13W-121011 N 920 13 3W-121011 ₹2 10 (Additional samples shall be listed on attached long form. Number of samples received; NOTE: REI will analyze incorpring samples bitsed upon information received and will not be responsible for errors or conissions in calculations resulting from the inaccuracy provinged data. By signing citorideompany representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analysical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1-35 monthly interest surcharge. Date/Time: 121 Relinguished By: Sample Condition: On Ice Sealed Intact Laboratory Use Onby CYASY No Temp. (F°) Yes / No Yes / No 21301 Zocearrier: Received By Date/Time

> Date Initials Phone Email Fax 4978 2457 7-2011_version 1

Initials

Phone Email Fax

Dale 2(4 (1

Date

Time (C2)

Time

Initials

Initials

Date (2) 14 () Time ila

Proall Fax

Phone Email Fax

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

Α	=	Amosite	F	=	Fiber
An	=	Anthophyllite	В	=	Bundle
C	=	Chrysotile	C	=	Cluster
Cr	=	Crocidolite	M	=	Matrix
T	=	Tremolite			

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

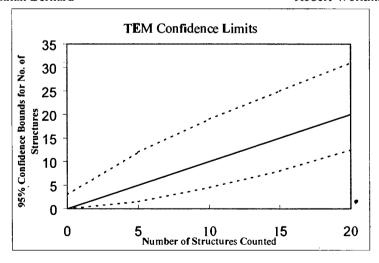
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence tounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voitage (KV)	100 KV
Magnification	ZOKX OKX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Printary fitter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	Roth
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	899
Date received by lab	12/13/11
Lab Job Number:	225959
Lab Sample Number:	836579

Analyzed by	JR
Analysis date	12/11/1
Method (D=Direct, I=Indirect,	
IA=Indirect, ashed)	·
Counting rules	Ail
(ISO, AHERA, ASTM)	<u> </u>
Grid storage location	Month Analyzed
Scope Alignment	Date Analýzed

F-Factor Calculation (Indirect P	reps Only):
Fraction of primary filter used	1
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of Structures Dimensions		nsions	Identification	dentification Mineral Class				1 = ves, blank = no			
		Туре	Primary	Total	Length	Width	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Amphibole	C NAM		Sketch/Comments	Sketcti	Photo	EDS
A	H3-4	W)							_					
	613-4	ND		. ·				··					·	·
	F3-4	ND												
	E3-4	ND												
	C3-4	Ń		G	Ws	Ad	B	Folyint.	n F	3	Shodebi	115		
13	H5-4	ND								ļ.				
	G5-4	ND						B 12	4/0		·			
	F5-4	ND			,		٠.	14 1	//					
	E5-1	M						' / -		-				
	·			·		,								

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	ZOKX OKX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area [mm2]	385
Secondary Filter Area (mm2)	
QA Tyoe	

Client:	Rock
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2).	818
Date received by lab	12/13/11
Lab Job Number:	2259 59
Lab Sample Number:	8365 80

F-Factor Calculation (Indirect Pre	ps Only):
Fraction of primary fitter used	
Total Resuspension Volume (mi)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	12/11/11
Method (O=Direct, I=Indirect, fA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dimer	nsions	Identification					1 = yes, blank =		= no
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A.	64-6	MO												· ·
	F4-6	ND											·	
	E4-4	WD			Fry	25 A	faß	~80%.	1 hu	6	5/2 debu	1 S		
·	4-6	ν'n			1	.		1				,		
	B4-6	M					4	12/14	lu					
	A4-6	WD					. /						-	
B	64-1	MD						·						
	F4-1	M										-		
	£4-1	W												
					·					·				

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	ZOKX OKX
Grid opening area	0.01
Scale: !L =	0.28 um
Scale: ID =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	Roth
Sample Type (A=Air, D=Dust):	A
Air yolume (L) or dust area (cm2)	920
Date received by lab	12/13/11
Lab Job Number:	225959
Lab Sample Number:	836581

F-Factor Calculation (Indirect P	reps Only):
Fraction of primary filter used	. •
Total Resuspension Volume (ml)	
Volums Applied to secondary tilter (ml)	¢

Analyzed by	Th
Analysis date	12/11/11
Method (D=Oirect, I=Indirect,	
iA=indirect, ashed)	
Counting rules	Ail
(ISO, AHERA, ASTM)	1 11+
Grid storage location	Month Analyzed
Scope Alignment	Date Analýzed

Grid	rid Grid Opening Structure		No. of St	ructures	Dimer	nsions	Identification			Mineral Class		1 = yes, blank = no		= no
	One oponing	Туре	Primary	Total	Length	Width		Amphibole			Sketch/Comments	Sketch	Photo	EDS
A	64-1	NO												
	F4-1	ND												
	e4-1	Mp_			Pry	2 A	eB	~ 80%	inf	in f	5-7%	lebus	>	
	C4-1	ND			1			· '	1		,			
	134-1	ND							Ø /:	2/14/1/				
B	K4-6	NP						1		/ / /				
	14-6	ND						1						
	64/0	CN		l 								-		
	F4-6	\mathcal{M}											`	
		^			·	,								

the state of the s	
Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	ZOKX OKX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	Rock
Samole Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2).	929
Date received by lab	12/13/11
Lab Job Number:	225959
Lab Sample Number:	836582

F-Factor Calculation (Indirect Pre	eps Only):
Fraction of primary filter used	
Total Resuspension Volume (mf)	
Volume Applied to secondary filter (ml)	

Analyzed by	115
Analysis date	12/4/11
Method (D=Dlrect, l=Indirect,	1 '}
IA=Indirect, ashed)	D
Counting rules	Ail
(ISO, AHERA, ASTM)	115
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dimer	nensions Identification Mineral Class					1 = y	es, blank	= no	
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketcti/Comments	Sketch	Photo	EDS
A	K2-6	NÒ												
	H2-6	M				Phys	A:	50 % inh	int	. 5	- 7hodeh	7		
	K3-1	ND				Pup	B	O chank	nf	5	7 hodelar	7		
	H3-1	M						,)	1					
	44-4	WD			•				15	12/14/	u			
13	K3-6	W		•				/	//	77	·			
	H3-3	M						/			·			
	633	MJ.			,							-		
	F3-60	MD												
		A-1812												

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, s/cc = $\frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{\text{IL}}{\text{1000cc}}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



December 7, 2011

Laboratory Code: Subcontract Number:

RES NA

Laboratory Report: Project # / P.O. #

RES 225466-1 None Given

Project Description:

PacifiCorp - 3rd West

Substation

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 225466-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 225466-1

R & R Environmental

Client:

Client Project Number / P.O.: None Given

Client Project Description: Date Samples Received:

PacifiCorp - 3rd West Substation

December 6, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

December 6, 2011

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter	
ID Number	ID No	umber	Analyzed Volui Sampl		Asbestos Structures Detected	Sensitivity	Concentration	Loading	
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)	
3W120511-N	EM	833031	0.0700	1124	ND	0.0049	BAS	BAS	
3W120511-S	EM	833032	0.0700	1122	ND	0.0049	BAS	BAS	
3W120511-E	EM	833033	0.0700	1122	ND	0.0049	BAS	BAS	
3W120511-W	EM	833034	0.0700	1126	ND	0.0049	BAS	BAS	
Blank	EM	833035	NA	0	NA				
Blank	EM	83303 6	NA	0	NA				

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

DATA QA



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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

A = A	Amosite	F =	Fiber
An = A	Anthophyllite	B =	Bundle
C = C	Chrysotile	C =	Cluster
Cr = 0	Crocidolite	M =	Matrix
T - 1	Framolita		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

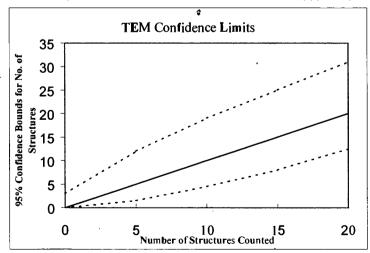
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	ZOKX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primaty filter area (mm2)	385
Secondary Filter Area (mm2)	
ОА Туре	

R+R
A
1124
12/6/11
225466
433031

F-Factor Calculation (Indirect Pro	eps Only):
Fraction of primary filter used	
Total Resuspension Voluma (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	-1ll
Analysis date	12/6/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	P
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Dula GA SHS 12/1/

Grid	Grid Opening	Structure	No. of St	ructures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
	Jones Sporting	Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F4-4	M												
	94-4	W					anex A	7021N	ici s	7/3	Lbn>			
	C4-4	ND				(Prep B	NA						
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3	F3-4	100												
	63-4	2												
	c3-4	NO												

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L ≖	0.28 um
Scale: 1D =	0 056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

R+R
A
1122
12/6/11
225466
833032

Fraction of primary filter used		
Total Resuspsission Volume (ml)		

Analyzed by	M
Analysis date	12/6/11
Method (D=Direct, I=Indirect. IA=Indirect, ashed)	Ď
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

	Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	sions	Identification	dentification Mineral Class			1 = yes, blank = no		= no	
L		Ond Opening	Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
	A	G4-4	W									*			
		F4-4	M					Cver	A sil- in	act	15/	debris			
		84-4	M					Prep	BNA						·
		C4-4	8						Ja	r fl	m	12/4/11			
	B	F2.6	M)												
		22-6	ND												
		C2-6	NO												
										. 24 7				;	
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Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	(20KX)10iX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) dr dust area (cm2)	1122
Date received by lab	12/6/11
Lab Job Number:	225466
Lab Sample Number	833033

F-Factor Calculation (Indirect Pre	eps O	nly):	
Fraction of primary filter used			
Total Resuspension Volume (ml)			
Volume Applied to secondary filtsr (ml)			:

Analyzed by	111
Analysis date	12/6/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	P
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class	Mineral Class			1 = yes, blank = no		
	Sild Opening	Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	64-3	10											·	
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B	K5-4	100												
	45-4	IND												
	(15-4	M												

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Ścale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1126
Date received by lab	12/6/11
Lab Job Number:	225466
Lab Sample Number	833034

F-Factor Calculation (Indirect Pre	ps Only):
Fraction of primary filter used	
Total Resusperision Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	-111
Analysis data	12/10/11
Analysis date	1-101
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	
Counting rules	Α (3
(ISO, AHERA, ASTM)	1 14
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Structures		Dimensions		Identification	Mineral Class			1 = yes, blank = no			
		Туре	Primary	Total	Length	Width	i.commondon	Arriphibole	С	NAM	Sketch/Comments	Sketcti	Photo	EDS
A	05-6	M												
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Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

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micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must nieet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



December 8, 2011

Laboratory Code: Subcontract Number:

RES NA

Laboratory Report: Project # / P.O. #

RES 225594-1 None Given

Project Description:

PacifiCorp - 3rd West

Substation

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 225594-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 225594-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description: Date Samples Received:

PacifiCorp - 3rd West Substation December 7, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

December 8, 2011

Client	Lab		Area	Air	Number of	Analytical	Astestos	Filter
ID Number	ID No	umber	Analyzed	Volume	Asbestos	Sensitivity	Concentration	Loading
				Sampled	Structures			
			•		Detected			
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W120611-N	EM	833990	0.0700	1134	ND	0.0049	BAS	BAS
3W120611-S	EM	833991	0.0700	1130	ND	0.0049	BAS	BAS
3W120611-E	EM	833992	0.0700	1130	ND	0.0049	BAS	BAS
3W120611-W	EM	833993	0.0700	1136	ND	0.0048	BAS	BAS
Blank	EM	833994	NA	0	NA	•		
Blank	EM	833995	NA	0	NA			

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010 Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

DATA QA

Due	Date:	 2	,	8.11
Due	Time:	L	4	450

RESERVOIRS Environmental, Inc. 5801 Logen St Denver, CO 90216 • Fb: 303 964-1886 • Fax 303-477-4275 • Toll Free: 666 RESI-ENV

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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type A = Amosite An = Anthophyllite C = Chrysotile Cr = Crocidolite T = Tremolite Structure Types F = Fiber B = Bundle C = Cluster M = Matrix

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

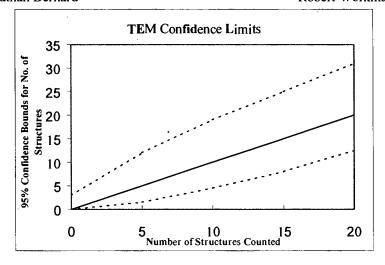
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instrument_	JEOL 100 CX (N) S
Voltage (KV)	100 KV
 Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	Rock
Sample Type (A=Alr, D=Dust):	Δ
Air voluma (L) or dust area	1134
(cm2)	
Date received by lab	12 7 4
Lab Job Number:	225514
Lab Sample Number:	433990

F-Factor Calculation (Indirect Pre	ps Only):	
Fraction of primary filter used		. :
Total Resuspension Volumo (ml)		
Volume Applied to secondary filter (ml)	-	

Analyzed by	713
Analysis date	12/8/11
Mettiod (D=Direct, I=Indirect,	111
IA=Indirect, ashed)	\mathcal{L}
Counting rules	4.1
(ISO, AHERA, ASTM)	110
Grid storage location	Month Analyzed
Scope Alignment	Data Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dimer	nsions	Identification	Mineral Class				1 = y	ea, blank	= no
		Туре	Primaty	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F4-6	ND												L
	E4-60	ND												·
	F3-1	W		ρ	115 S	Aq	6 ~	50 % in h	4	5-7	of debri,			
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	H3-3	MD						_						

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0,056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RAR
Sample Type (A=Air, D=Dust):	Δ
Air volume (L) or dust area (cm2)	1130
Date received by lab	12/3/4
Lab Job Number:	225514
Lab Sample Number:	632991

F-Factor Calculation (Indirect Pre	7	
Fraction of primary filter used		
Total Resuspension Volume (ml)		
Volume Applied to secondary filter		

Analyzed by	713
Analysis date	12/8/11
Method (D=Direct, I=IndiracL	
IA=Indirect, ashed) Counting rules	
(ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	nuctures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
		Туре	Primary	Total	Length	Width		Amphibole	<u> </u>	NAM	Sketch/Comments	Sketch	Photo	EDS
A	G2-3	S												-
	F2-3	ND			P	no A	+3	~ 80 he.	n h	F	5% deb	، د	1:.	·
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	62-3	7						1R 12	8/11					
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	EZ-6	W		1. 1.										
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Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Maanification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type.	

Client :	Rock
Sample Type (A=Air, D≠Dust):	Δ
Air volume (L) or dust area (cm2)	1130
Date received by lab	17 7 4
Lab Job Number:	225594
Lab Sample Number:	833992

Fraction of primary fitter used	٠.
Total Resuspension Volume (mi)	
Volume Applied to secondary filter	

Analyzed by	716
Analysis date	12/8/11
Method (D≠Direct, I=Indirect,	-
IA=Indirect, ashed)	
Counting rules	
(ISO, AHERA, ASTM)	Alt.
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

	Grid	rid Grid Opening Structure No. of Structures		Dimer	Dimensions Identification		Mineral Class				1 = ves, blank = no				
		Grid Operang	Туре	Primary	Total	Length	Width		Amphiboie	ပ	NAM	Sketch/Comments	Sketch	Photo	EDS
	A	K4-3	ND								<u> </u>				
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Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	Rock
Sample Type (A=Air, D=Dust):	Δ
Air volume (L) or dust area (cm2)	1136
Date received by lab	12 7 4
Lab Job Number	225514
Lab Sample Number	633993

Analyzed by	713
Analysis date	12/8/11
Method (D=Direct, I≠Indirect, IA=Indirect, ashed)	7
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):									
Fraction of primary filter used									
Total Resuspension Volume (ml)									
Volume Applied to secondary filter (ml)									

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mineral Class	,			1 = y	es, blank	= no
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F4-6	ND												
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B	H3-3	ND												
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. Pro tr	F3-3	ND							N - 1					· ·
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Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



December 9, 2011

Laboratory Code: Subcontract Number: Laboratory Report: RES NA

Project # / P.O. #

RES **22**56**2**7-1 None **G**iven

Project Description:

PacifiCorp - 3rd West

Substation

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer.

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 225627-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE 1. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 225627-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description:

PacifiCorp - 3rd West Substation

Date Samples Received:

December 8, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

December 9, 2011

Client	Lab ID Number		Area	Air	Number of	Analytical	Astiestos	Filter
ID Number			Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W120711-N	EM	83422 9	0.0700	1162	ND	0.0047	BAS	BAS
3W120711-S	EM	834230	0.0700	1158	ND	0.0047	BAS	BAS
3W120711-E	EM	834231	0.0700	1158	· ND	0.0047	BAS	BAS
3W120711-W	EM	834232	0.0700	1164	1	0.0047	0.0047	14.3
Blank	EM	834233	NA	0	NA			
Blank	EM	834234	NA	0	NA			

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010

Effective Filter Area = 385 sq mm



RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; 'fDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:

RES 225627-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description: PacifiCorp - 3rd West Substation
Date Samples Received: December S, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

December 9, 2011

Client ID Number	Lab ID No	umber	Asbestos Mineral	Ast	nestos Str	ucture Typ	Des*	Structures >5 Microns in Length	**Excluded Structures	Asb Struc	estos tures for
			•	Fibers	Bundles	Clusters	Matrices			Concent	ation
3W120711-N	EM	834229	ND	0	0	0	0	0	0		0
3W120711-S	EM	834230	ND	0	0	0	0	0	0		0
3W120711-E	EM	834231	ND	0	0	0	0	0	0		0
3W120711-W	EM	834232	Chrysotile	1	0	0	0	0	0	4	1
Blank	EM	834233	NA								
Blank	EM	834234	NA								

^{*}See Analytical Procedure for definitions

^{**}C = Excluded from total due to lack of confirmation

^{**}L = Excluded from total for length less than 0.5 micron (AHERA only)

^{**}A = Excluded from total due to i ncorrect aspect ratio

ND = None Detected

Due Date: 2.51



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Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type A = Amosite An = Anthophyllite C = Chrysotile Cr = Crocidolite T = Tremolite Structure Types F = Fiber B = Bundle C = Cluster M = Matrix

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

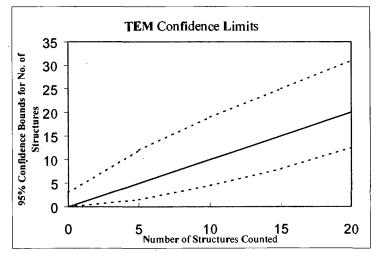
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20isk 10KX
Grid opening area (mn12)	0.01
Scale: 1L =	0.28 ium
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
Q A Туре	

Client :	Rth
Sample Tyoe (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1162
Date received by lab	12/8/11
Lab Job Number:	225627
Lab Sample Number:	834221

Fraction of primary filter used	T	
Total Resuspension Volume (ml)		
Volume Applied to secondary filter	-	·

Analyzed by	JB
Analysis date	12/9/9
Method (D=Qirect, I=Indirect, tA=)ndirect, ashed)	D
Counting miles (ISO, AHERA, ASTM)	AH
Grid storage location-	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Ond	Ond Opening	Туре	Primary	Total	Length Width		identinication	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K3-1	ND												
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	E4-1	ND					/							
	C3-6	1/0		· .			/					·.		
		70									•			

Laboratory nsme:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20KX 1DKX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter arsa (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

Client :	Rth
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (om2)	(158
Date received by lab	12/8/11
Lab Job Numben	225627
Lab Sample Number	834230

Analyzed by	JB
Analysis date	12/9/4
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Gnd storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (indirect P	reps	Only	y):	
Fraction of primary filter used				
Total Resuspension Volume (ml)			-	
Volume Applied to secondary filter (ml)				

1	Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
			Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
	A	B5-1	ND												
		C5-3	NO			Pus		~50	Obinh	<i>f</i>	5	/ de bri	<u> </u>		
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		B5-3	ND			•				:					
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Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um_
Scale: 1D =	0.056 um_
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Туре	

Client :	Rth	
Sample Type (A=Air, D=Dust):	A	·
Ait volume (L) or dust area (cm2)	1158	
Date received by lab	12/8/0	
Lab Job Number:	225627	
Lab Sample Number:	834286	8318

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used

Total Resuspension Volume (mi)

Volume Applied to secondary filter

Analyzed by	JB
Analysis date	12/9/9
Method (D=Direct, I=Indirect,	
IA=Indirect, ashed)	
Counting miles	
(ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scops Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	:= no
Gild	Grid Opening	Туре	Primary	Total	Length	Width		Amphibole	Ċ	NAM	Sketch/Comments	Sketch	Photo	EDS
A	E4-4	MD												
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Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Rth
A
1169
12/8/11
225627
834264

F-Factor Calculation (Indirect Pr	reps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	12/9/4
Method (D=Direct, I=Indirect,	111
IA=Indirect, ashed)	\mathcal{D}
Counting rules	
(ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
-	
Scope Alignment	Date Analyzed

\lceil	Grid Grkl Openin		Structure	No. of St	ructures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
L	J		Туре	Primary Total		Lenoth Width			Amphibole	С	NAM	Sketch/Comments_	Sketch	Photo	EDS
	A	14-6	ND				•								
	• /	4-3	ND		•	Pinas	A	60%	e in tant	ے	e/n	debus			· .
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Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (min)

Concentration, s/cc = $\frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{\text{IL}}{1000\text{cc}}$

Filter loading, $s/mm^2 = \frac{\# Asbestos structures}{Area Analyzed (mm^2)}$

GO = TEM grid opening



December 12, 2011

Laboratory Code:
Subcontract Number:

RES NA

Laboratory Report: Project # / P.O. #

RES 225718-1 None **G**iven

Project Description:

PacifiCorp - 3rd West

Substation

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 225718-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 225718-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description: Date Samples Received:

PacifiCorp - 3rd West Substation

December 9, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

December 9, 2011

Client	Lab		Area	Air	Number of	Analytical	Astestos	Filter	
ID Number	ID N	umber	Analyzed Volume Sampled		Asbestos Structures Detected	Sensitivity	Concentration	Loading	
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)	
3W-120811-N	EM	835054	0.0700	1160	ND	0.0047	BAS	BAŞ	
3W-120811-S	EM	835055	0.0700	1158	ND	0.0047	BAS	BAS	
3W-120811-E	EM	835056	·0.0700	1156	1	0.0048	0.0048	14.3	
3W-120811-W	EM	835057	0.0700	1160	ND	0.0047	BAS	BAS	
Blank	EM	835058	NA	0	NA			·	
Blank	EM	83505 9	NA	0	NA				

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010 Effective Filter Area = 385 sq mm ·

DATA QA

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-f1; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:

RES 225718-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description: PacifiCorp - 3rd West Substation

Date Samples Received:

December 9, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

December 9, 2011

Client ID Number	Lab ID No	umber	Asbestos Mineral	Ast	nestos Str	ucture Typ	oes*	Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for
			•	Fibers	Bundles	Clusters	Matrices	ŭ		Concentration
3W-120811-N	EM	835054	ND	0	0	0	0	0	0	0
3W-120811-S	EM	835055	ND	0	0	0	0	0	0	0
3W-120811-E	. EM	835056	Chrysotile	1	0	0	0	0	0	1
3W-120811-W	EM	835057	ND	0	0	0	0	0	0	0
Blank	EM	835058	NA							
Blank	EM	835059	NA							

^{*}See Analytical Procedure for definitions

^{**}C = Excluded from total due to lack of confirmation

^{**}L = Excluded from total for length less than 0.5 micron (AHERA only)

^{**}A = Excluded from total due to i ncorrect aspect ratio

ND = None Detected

Due Date: 2-12-11 Due Time: 800~



SUBMITTED BY:	INVOICE TO: (IF DIF	FERE	(T)				C	ONT	ACT INFO	RMATION:			
Company: DAR-Empronmental Fic.	Company:				C	ontact:	WERO	to	211	ec Con	tact:			
Address: 47 4, 9000 S, F2	Address:				P	Phone: 901,541,1035 / Phon					ne:		-	
Sanky Ut B4070					F	Fax:					Fax:			
					C	ell/pager:				Cell/	Cell/pager:			
Project Number and/or P.O. #:					F		liverable Email							
Project Description/Location: Zalis Corp- Zivs West &	usanon					DA	VE@	RP	EI	VIE	D.COX	1		
ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm				JESTI	A 100	ALYSIS		VA	LID I	MATRIX GO	DDES	1	ABN	OTES:
PLM / PCM (TEM RUSH (Same Day) PRIORITY (Next Day)	ay)STANDARD	_	Quant,		RCRA 8,	2		Air =	A	В	ulk = B			
(Rush PCM = 2hr, TEM = 6hr.)		Count			8	DRO		Dust	= D	Pa	aint = P			
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm		O H	, 7402, ISO, +/-, ISO-Indirect Preps		1 02	GRO,		Soil :	= S	W	ipe = W			
Metal(s) / Dust RUSH 24 hr 3-5 Day		Point	ISO, ect P						rinkii	ng Water = E	W			
DODA 9 / Matala 9 Molding	**Prior notification is		die is		1 .	8260,		1	Waste	Water = W	W		-	
RCRA 8 / Metals & Welding RUSH 5 day 10 day	required for RUSH	report,	7402, 30-Ind	OSHA				-	(Other = O				
die Scall / ISE	turnarounds.**	Long				MTBE, 8260,	**AS	TME	1792 8	pproved wipe	media only**	1		
Organics 24 hr 3 day 5 Day			Level II, o-vac, IS	7400B, OS				7	T			1		
"Analysis turnarounds are subject to laboratory sample volume and are not gu	aranteed. You will be notifited	report,	TEM - AHERA, Level Semi-quant, Micro-vac,	740 Res	Analyte(s)	Welding Fume,						-		
if delays are expected. Additional feet apply for afferhours and holidays		t rey	¥. ₹		Ana	g 60	En a	0	(s)			-		
		Short	AHERA, Jant, Micr	7400A,		S S	0 8	Code	ner	_		-		
Special Instructions:		100	- dus	× 1 .	METALS	ORGANICS	Sample Volume	×	# Containers	Date	Time	20.000		Bernar and State
Client sample ID number (Sample ID's must be unique	कुरमञ्जूतामा विकास । एक स्थापन एक स्थापन । स्थापन स्थापन	PLM	Semi	PCM	E	ORGAN OTHER	E >	Matrix	ပိ	Collected mm/dd/yy	Collected	EM I		OF (Laborator)
		_		4 0	E	00	Ø =	2	*			-	The second limited in	Only)
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2 - 5			-1-				1 (5)	21			P1 22 114			55
3 - =						\perp	1156	\perp	<u></u>				1	150
A - W			7				116	> 4		A	1 1			57
5 Bank														38
6 Blank														50
7														
9									T				1	
10					1			1					1	
11												1	1	
							7 7 7				1.15 . 1.72	1	1	
13				-				1	1			1	+	
	ional samples shall be listed of	on atta	ched for	a form	.)									
NOTE: REI will analyze incoming samples based upon information received and will not						curacy of o	riginal data. By	sianina	client/	company repres	entative agrees	that sub	mission	of the
following samples for requested analysis as indicated on this Chain of Custody shall	constitute an analytical services agree	ment y	ith paymer	t terms o	FNET 30	days, failure	to comply with	payme	nt term	s may result in	a 1.5% monthly	interest :	surcharg	/e.
1 200	1	2/1	11		3	200								
Relinquished By:	16/9	0/1	(Date/T	Time: 1	DW	S	ample	Con	dition: On	ice Sea	aled	Inta	
	ate/Time: (2-91/	0	Sele	2	Carrie	Feel	EX T	emp.	(F°)	Y	/N Y	//N	CY	N.
Results: Contact \) (Page Phone Email Fax Date	12/9 Time 6:50 In	itials	M cor	tact		Pa	ge Phone	Émail	Fax	Date	Tim	10		Initials
Contact Page Phone Email Fax Date	Time /n	itials	Con	tact		Pa	ge Phone	Email	Fax	Date	Tim	ne		Initials
(Netrone)	trucker +	1 4			223	454						-		

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type A = Amosite An = Anthophyllite C = Chrysotile Cr = Crocidolite Cr = Tremolite Structure Types F = Fiber B = Bundle C = Cluster M = Matrix

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

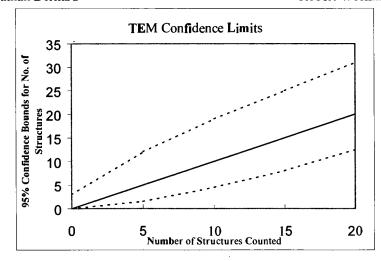
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

	
Laboratory name:	REI
Instrument	JEOL 100 CX N(S)
Voitage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056.um
Primary filter area (mm2)	385
Secondary Filter Area (rnm2)	
QA Type	

Client	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1160
Date received by lab	12/9/91
Lab Job Number:	225718
Lab Sample Number:	835054
· ·	

Analyzed by	-W
Analysis date	12/9/11
Method (D=Direct, I=Indirect, IA=Indirect, astred)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor	Calculation	(Indirect	Preps	Only):

Fraction of primary filter used		
Total Resuspension Volume (ml)		
Volume Applied to secondary filter (ml)	٠.	

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
		Туре	Primary	Total	Length	Width		Amphibole	_c_	NAM	Sketch/Comments	Sketch	Photo	EDS
A	C5-1	W		<u></u> .										
•.	C5-6	M				Pr	er Ant	0% (Wacz	~5/	debr	り			
	961	NO				3	er Br	76 lintad	~57.	lebr	4			
	16-3	M						Impu	2/91	iţ				
2	K6-31	2												
	H6-31	8												
	(96-1	ND		· · · · ·										
									1.0					

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	2010X IOKX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RAR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1158
Date received by lab	12/9/11
Lab Job Number:	225718
Lab Sample Number	8 35055

F-Factor Calculation (indirect Pr	eps Only):
Fraction of primary tilter used	
Total Resuspension Volume (mi)	
Volume Applied to secondary filter (ml)	

Analyzed by	Le
Analysis date	12/9/11
Method (D=Direct_l=Indirect, IA=Indirect, ashed)	<u> </u>
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Structu	ures Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
0	Ond Opening	Туре	Primary T	otal Length	Width	100116,1026,011	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	06-3	N2											
	F6-3	(M)				Over	A MOOL. 14	ct 25	7 de	bos		.	<u> </u>
	86-1	M				Pne	y BA y	(or)	Vin	12/9/11			
	(6-1	NO											
3	C4-1	W						-	,				
	13-6	M											
	B36	ND											

Laboratory name:	REI
Instrument	JEOL 100 CX NS
Voltage (KV)	100 KV
Magnification_	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056.um
Primaty filter area (mm2)	385
Secondary Filter Area (mm2)	4
QA Type	

TEMPLES CONTROL CONTROL							
Client :	R+R						
Sample Type (A=Air, D=Dust):	A						
Air volume (L) or dust area (cm2)	1156						
Date received by lab	12/9/91						
Lab Job Number:	225718						
Lab Sample Number	835056						

F-Factor Calculation (Indirect Pr	ер	s O	nly):		-7	
Fraction of primary filter used	T		-			
Total Resuspension Volume (ml)				٠.		_
Volume Applied to secondary filter (ml)	1	:				

Analyzed by	M
Analysis date	12/9/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	· 12
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Grid Opening Structure		No. of Structures		Dimensions		Identification	Mineral Class			1 = yes, blank = no			
Туре	Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS	
A	16-1	M				-			i. **	1 1				
	K6-1	W		·			Ores A	~601. inlace	~50	. des	ציי			
	1-16-1	N)												
	(16-1	M		ĭ						· .				
B	C5-3	W							<u>.</u>				. :	
	C6-4	NO												·
	134-4	F		(3	1	cn		_					,
		87 X 87												

Laboratory name:	REi
Instrument	JEOL 100 CX N(S)
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (nim2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.05S um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	pop.

R+R A
A
1160
2/9/91
25718
35057

Analyzed by	-W
Analysis date	12/9/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	1.12
Counting miles (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):								
Fraction of primary filter used			7.					
Total Resuspension Volume (mi)		1.00		.:				
Volume Applied to secondary filter								

Grid Grid Opening Structure Type				Dimensions		Identification	Mineral Class	· · · ·			1 = ves, blank = r		= no	
		Туре	Primary	Total	Length	Width		Amohibole	С	NAM	 Sketch/Comments	Sketch	Photo	EDS
A	23-3	NA				-								
	C3-3	M						A rAllin	act	51.0	lebns			
	94-3	NO					Preve	~Dinh	W 5	70,	lebrs			, <u> </u>
	£4-3	10							1	L .	12/9/11			
B	16-1	M							-	,				
	X6-1	NO												
	116-1	ND					,							

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\text{\# Asbcstos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



December 13, 2011

Laboratory Code:

RES NA

Subcontract Number: Laboratory Report:

RES 225865-1

Project # / P.O. #

None Given

Project Description:

PacifiCorp - 3rd West

Substation

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. Is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 225865-1 is the job number assigned to this study. This report Is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described In this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except In full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage Is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely.

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101698-0; 'TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 225865-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description:

PacifiCorp - 3rd West Substation December 12, 2011

Date Samples Received:

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

December 13, 2011

Client ID Number	Lab ID No	umber	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading	
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)	
3W120911-N	EM	835981	0.0700	1114	ND	0.0049	BAS	BAS	
3W120911-S	EM	835982	0.0700	1110	ND	0.0050	BAS	BAS	
3W120911-E	EM	835983	0.0700	1110	· ND	0.0050	BAS	BAS	
3W120911-W	EM	835984	0.0700	1114	ND	0.0049	BAS	BAS	
Blank	EM	835985	NA	0	NA				
Blank	EM	835986	NA	0	NA				

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010 Effective Filter Area = 385 sq mm



Due	Date:_	12/311
Due	Time:	8200



Je	RES 225865	
D:	•	

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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

			_	
Α	=	Amosite	F =	Fiber
An	=	Anthophyllite	B =	Bundle
\mathbf{C}	=	Chrysotile	C =	Cluster
Cr	=	Crocidolite	M =	Matrix
T	=	Tremolite		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

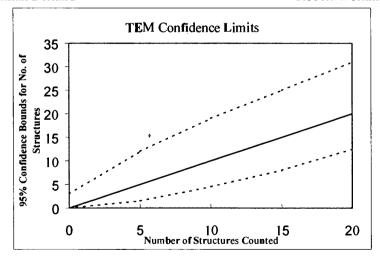
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
instrument	JEOL 100 CX (V S
Voltage (KV)	100 KV
Magnification	20KX OKX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	Rak
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1.114
Date received by lab	12/12/11
Lab Job Number	225865
Lab Sample Numben	835981

F-Factor Calculation (Indirect P	Preps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applisd to secondary filter (ml)	

Analyzed by	73
Analysis date	12/13/11
Method (D=Direct, l=Indiredt, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

	Grid	Grid Opening	Structure	No. of Stm	ctures	Dimer	sions	Identification	Mineral Class				1 = v	s, blank	= no
	•		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
	A	F4-4	ND												<u> </u>
		E4-4	ND		<u> </u>	0	o A	90	Low hat	3-	50/	Jelanis			
		C4-4	VD		٠	Pos	3	60	(in fait	3-5	2/0 4	Elais	·=·	·	· ·
		B4-4	ND						b		/				
	B	E3-6	ND		· · ·				45	2/18/	4				
		C3-6	NO						//	, ,				,	<u></u>
		B3-6	ND										<u>.</u>		L
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			:		٠.										- .

Laboratory nama:	REI
Instrument	JEOL 100 CX (N) S
Voltaae (KV)	100 KV
Magnification	20KX OKX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	Rak
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1110
Date received by lab	12/12/11
Lab Job Number:	215865
Lab Sample Number:	835982

F-Factor Calcula	tion (Indirect P	reps C)nly):			
Fraction of primary	filter used					
Total Resuspension	n Volume (ml)					
Volume Applied to (ml)	secondary filter			-	·	•

Analyzed by	15
Analysis date	12/13/11
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	D
Counting mles (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mineral Class				1 = yes, blank = no			
		Туре	Primary	Total	Length	n Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS	
A	H3-3	ND.													
	613-3	ND			Pn	b. A	90	Lun fun	+	3-	5he de bu	2			
	F3-3	2			Pu	B	~A								
	E3-3	2					/) 		
B	H3-6	ND					AR 12	13/11							
	636	W					M I						,		
	F3-6	ND													

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20KX TOKX
Grid opening ama (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056.um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Typo	

Rak
A
7110
12/14/11
225865
83 5983

	eps C		
Fraction of primary filter used			
Total Resuspanaion Volume (mi)	T.	٠	
Volume Applied to secondary filter	1		•

Analyzed by	113
Analysis date	12/13/11
Method (D=Direct, l=indirect, IA=Indirect, ashed)	7 / D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No of Str	uctures	Dimensions		Identification	Mineral Class		· ·	<u>]</u> ·.	1 = ves, blank = no		
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H2-6	NO		•		•								
	192-6	ND				Pus	A	Ope in to	f	3-	The debu	3		
	F2-6	ND				Rus	B 7	of in the	F	3-	to be de bri	5	.·	
	E2-6	ND				- 1	h	1/						L
B	1540	W					15	2/13/11		. ,				-
	H4-6	MD					1	/ /						
	694-6	M												
	. \													
·				,										

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX TOKX
Grid opening area (nim2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	Rak
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1114
Date received by lab	12/12/11
Lab Job Number:	225865
Lab Sample Number:	835984
•	=

Lab Sample Number:	10	<u>بح ر</u>	 17	Ų
F-Factor Calculatioa (Indirect Pr	eps O	nly):	 	_
Fraction of primary filter used	1		٠	
Total Resuspension Volume (ml)				
Volume Applied to seeondary filter (ml)			<u> </u>	_

Analyzed by	Jr.
Analysis date	12/13/11
Method (D=Direct, i=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	nctures	res Dimensions		Identification	Mineral Class	***	·		1 = yes, blank		= no
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	Hel-4	ND												
·	614-4	ND			R	Λ Å	90/0	in fint	3	5/2	debus			
	F4-4	NO		•	Por	Z	90%	ntent	3-	5 %	debris			
	E4-4	M					1							
3	F4-4	JD					15	2/13/4		,				
	E4-4	ND					P	//					,	
	CUY	WD		-		/								
	. !													

Analytical Procedures – AHERA

Transmission electron inicroscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, s/cc = $\frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{A verage GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening